AMENDMENT TO THE CLAIMS

The following claim listing replaces all prior listings and versions of the claims:

LISTING OF CLAIMS

1. (Currently amended) A process for producing a perforated porous resin base, which comprises the following Steps 1 to 4:

[[(1)]] Step 1 of impregnating the porous structure of a porous resin base with a liquid or a solution;

[[(2)]] Step 2 of forming a solid substance from the liquid or the solution impregnated;

[[(3)]] Step 3 of forming a plurality of perforations extending through from the first surface of the porous resin base having the solid substance within the porous structure to the second surface in the porous resin base; and

[[(4)]] Step 4 of melting or dissolving the solid substance to remove it from the interior of the porous structure,

wherein the liquid or the solution used in Step 1 is a liquid or a solution of a soluble polymer, or a paraffin, or a compound capable of forming a solid substance by a chemical reaction,

wherein the soluble polymer is soluble in a water or an organic solvent,

wherein the soluble polymer or the paraffin is in a solid state at a temperature ranging from 15 to 30°C, and

wherein the compound capable of forming a solid substance by a chemical reaction is a polymerizable monomer undergoing a polymerization reaction by heat or light to form a polymer.

2. (Original) The production process according to claim 1, wherein the porous resin base is a porous resin sheet.

3. (Original) The production process according to claim 2, wherein the porous resin sheet is an expanded polytetrafluoroethylene sheet having a microstructure comprising fibrils and nodes connected to each other by the fibrils.

4. (Currently amended) The production process according to claim 1, wherein in Step 1, the liquid or the solution is impregnated into the porous structure of the porous resin base by a casting or dipping method.

5. (Currently amended) The production process according to claim 1, wherein the liquid used in Step 1 is a substance having a solidifying point or a melting point within a range of from –150 to 150°C.

6-7. (Cancelled)

8. (Currently amended) The production process according to claim 1, wherein [[the]] a substance having a solidifying point or a melting point within the range of from –150 to 150°C is impregnated as a liquid at a temperature exceeding the solidifying point or melting point thereof into the porous structure of the porous resin base in Step 1, the solid substance is solidified at a temperature not higher than the solidifying point or the melting point to form a

solid substance in Step 2, and this substance is melted at a temperature exceeding the solidifying point or the melting point to remove it in Step 4.

9-13. (Cancelled)

14. (Currently amended) The production process according to claim [[13]] 1, wherein the liquid or the solution containing the compound capable of forming a solid substance by a chemical reaction is a liquid or a solution also containing, in addition to the polymerizable monomer, a polymer obtained by the polymerization of the polymerizable monomer.

15. (Currently amended) The production process according to claim [[13]] 1, wherein the polymerizable monomer is an acrylate or methacrylate.

16. (Cancelled)

17. (Original) The production process according to claim 1, wherein in the perforating Step 3, the perforations are formed by means of i) a mechanically perforating method, ii) a method of etching by a light-abrasion method, or iii) a method of perforating by using an ultrasonic head equipped with at least one oscillator on the tip thereof and pressing the tip of the oscillator against the porous resin base to apply ultrasonic energy thereto.

18. (Currently amended) A process for producing a porous resin base with the inner wall surfaces of perforations made conductive, which comprises the following Steps I to VI:

[[(1)]] Step I of impregnating the porous structure of a porous resin base including both surfaces thereof with a soluble polymer or a paraffin, or a compound capable of forming a solid substance by a chemical reaction;

[[(2)]] Step II of forming a solid substance from the soluble polymer or the paraffin, or the compound capable of forming a solid substance by a chemical reaction, which has been impregnated, to form a composite sheet of a structure that both surfaces of the porous resin base have a layer of the solid substance, and the solid substance is impregnated into the porous structure;

[[(3)]] Step III of forming a plurality of perforations extending through from the first surface of the composite sheet to the second surface in the composite sheet;

[[(4)]] Step IV of applying a catalyst facilitating a reducing reaction of a metal ion to the surfaces of the composite sheet including the inner wall surfaces of the respective perforations;

[[(5)]] Step V of removing the solid substance from the composite sheet; and

[[(6)]] Step VI of using the catalyst applied to and remaining on the inner wall surfaces of the respective perforations in the porous resin base to apply a conductive metal to the inner wall surfaces,

wherein the soluble polymer is soluble in a water or an organic solvent,

wherein the soluble polymer or the paraffin is in a solid state at a temperature ranging from 15 to 30°C, and

wherein the compound capable of forming a solid substance by a chemical reaction is a polymerizable monomer undergoing a polymerization reaction by heat or light to form a polymer.

19. (Original) The production process according to claim 18, wherein the porous resin base is a porous resin sheet.

20. (Original) The production process according to claim 19, wherein the porous resin sheet is an expanded polytetrafluoroethylene sheet having a microstructure comprising fibrils and nodes connected to each other by the fibrils.

21. (Cancelled)

22. (Currently amended) The production process according to claim 18, wherein in Step I, the soluble polymer or the paraffin is impregnated by a method of casting a solution or a melt of the soluble polymer or the paraffin on both surfaces of the porous resin base or dipping the porous resin base in a solution or a melt of the soluble polymer or the paraffin, and in Step II, a composite sheet of the structure that both surfaces of the porous resin base have a solid layer of the soluble polymer or the paraffin, and the solid soluble polymer or the paraffin is impregnated into the porous structure is formed by a method of vaporizing out the solvent or lowering the temperature of the porous resin base to a temperature not higher than the solidifying point or melting point of the soluble polymer or the paraffin.

23. (Currently amended) The production process according to claim 18, wherein in Step I, the compound capable of forming a solid substance by a chemical reaction is impregnated by a method of casting a liquid or solution containing~~, as the compound capable of forming a solid substance by a chemical reaction, a~~ the polymerizable monomer undergoing a

polymerization reaction by heat or light to form a polymer on both surfaces of the porous resin base or dipping the porous resin base in the liquid or the solution containing the polymerizable monomer undergoing a polymerization reaction by heat or light to form a polymer, and in Step II, a composite sheet of the structure that both surfaces of the porous resin base have a solid polymer layer, and the solid polymer is impregnated into the porous structure is formed by a method of polymerizing the polymerizable monomer by heat or light to form a solid polymer.

24. (Original) The production process according to claim 18, wherein in Step III, the plurality of the perforations are formed in the composite sheet by means of i) a mechanically perforating method, ii) a method of etching by a light-abrasion method, or iii) a method of perforating by using an ultrasonic head equipped with at least one oscillator on the tip thereof and pressing the tip of the oscillator against the porous resin base to apply ultrasonic energy thereto.

25. (Original) The production process according to claim 18, wherein in Step V, the solid substance is dissolved and removed by using a solvent that does not dissolve or hardly dissolves the porous resin base, but exhibits good solubility for the solid substance.

26. (Original) The production process according to claim 18, wherein in Step IV, the solid substance is melted and removed.

27. (Original) The production process according to claim 18, wherein in Step VI, the conductive metal is applied to the inner wall surfaces of the respective perforations by electroless plating.

28. (Original) The production process according to claim 18, wherein the porous resin base with the inner wall surfaces of the perforations made conductive is an anisotropically conductive sheet that has conductive portions formed by the conductive metal applied to the resin portion of the porous structure in the inner wall surfaces of the plurality of the perforations extending through from the first surface to the second surface and permits imparting conductivity only to the thickness-wise direction of the sheet by the conductive portions.

29. (Currently amended) A process for producing a porous resin base with the inner wall surfaces of perforations made conductive, which comprises the following Steps i to viii:

[[(1)]] Step i of laminating, as mask layers, porous resin layers (B) and (C) on both surfaces of a porous resin base (A) to form a laminate of a 3-layer structure;

[[(2)]] Step ii of impregnating the respective porous structures of the laminate with a soluble polymer or a paraffin, or a compound capable of forming a solid substance by a chemical reaction;

[[(3)]] Step iii of forming a solid substance from the soluble polymer or the paraffin, or the compound capable of forming a solid substance by a chemical reaction, which has been impregnated;

[[(4)]] Step iv of forming a plurality of perforations extending through from the first surface of the laminate having the solid substance within the respective porous structures to the second surface in the laminate;

[[(5)]] Step v of dissolving the solid substance to remove it from the interiors of the respective porous structures;

[[(6)]] Step vi of applying a catalyst facilitating a reducing reaction of a metal ion to the surfaces of the laminate including the inner wall surfaces of the respective perforations;

[[(7)]] Step vii of removing the mask layers from both surfaces of the porous resin base (A); and

[[(8)]] Step viii of using the catalyst applied to and remaining on the inner wall surfaces of the respective perforations in the porous resin base (A) to apply a conductive metal to the inner wall surfaces,

wherein the soluble polymer is soluble in a water or an organic solvent, wherein the soluble polymer or the paraffin is in a solid state at a temperature ranging from 15 to 30°C, and wherein the compound capable of forming a solid substance by a chemical reaction is a polymerizable monomer undergoing a polymerization reaction by heat or light to form a polymer.

30. (Original) The production process according to claim 29, wherein the porous resin base is a porous resin sheet.

31. (Original) The production process according to claim 30, wherein the porous resin sheet is an expanded polytetrafluoroethylene sheet having a microstructure comprising fibrils and nodes connected to each other by the fibrils.

32. (Cancelled)

33. (Currently amended) The production process according to claim [[32]] 29, wherein [[the]] a liquid or a solution containing the compound capable of forming a solid substance by a chemical reaction is a liquid or solution also containing, in addition to the polymerizable monomer, a polymer obtained by the polymerization of the polymerizable monomer.

34. (Currently amended) The production process according to claim [[32]] 29, wherein the polymerizable monomer is an acrylate or a methacrylate.

35. (Currently amended) The production process according to claim 29, wherein in Step ii, the soluble polymer or the paraffin is impregnated by casting a solution or a melt of the soluble polymer or the paraffin on both surfaces of the laminate or dipping the laminate in a solution or a melt of the soluble polymer or the paraffin, and in Step iii, a solid polymer or a solid paraffin is formed by a method of vaporizing out the solvent or lowering the temperature of the laminate to a temperature not higher than the solidifying point or melting point of the soluble polymer or the paraffin.

36. (Currently amended) The production process according to claim 29, wherein in Step ii, a liquid or a solution containing, as the compound capable of forming a solid substance by a chemical reaction, [[a]] the polymerizable monomer undergoing a polymerization reaction by heat or light to form a polymer is impregnated into the respective porous structures of the laminate, and in Step iii, the polymerizable monomer is polymerized by heat or light to form a solid polymer.

37. (Original) The production process according to claim 29, wherein in Step iv, the plurality of the perforations are formed in the laminate by means of i) a mechanically perforating method, ii) a method of etching by a light-abrasion method, or iii) a method of perforating by using an ultrasonic head equipped with at least one oscillator on the tip thereof and pressing the tip of the oscillator against the porous resin base to apply ultrasonic energy thereto.

38. (Original) The production process according to claim 29, wherein in Step v, the solid substance is dissolved and removed by using a solvent that does not dissolve or hardly dissolves the porous resin base, but exhibits good solubility for the solid substance.

39. (Original) The production process according to claim 29, wherein in Step viii, the conductive metal is applied to the inner wall surfaces of the respective perforations by electroless plating.

40. (Original) The production process according to claim 29, wherein the porous resin base with the inner wall surfaces of the perforations made conductive is an anisotropically

conductive sheet that has conductive portions formed by the conductive metal applied to the resin portion of the porous structure in the inner wall surfaces of the plurality of the perforations extending through from the first surface to the second surface and permits imparting conductivity only to the thickness-wise direction of the sheet by the conductive portions.